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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,397	04/12/2004	Ming-De Deng	3161-18-3	3662

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EXAMINER

RAGHU, GANAPATHIRAM

ART UNIT PAPER NUMBER

1652

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/823,397	<b>Applicant(s)</b> DENG ET AL.	
	<b>Examiner</b> Ganapathirama Raghu	<b>Art Unit</b> 1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-35 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Claims 1-35 are pending in this application.

#### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-10 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: increase in activity of glutamine-fructose-6-phosphate amidotransferase, classified in class 435, subclass 84.
- II. Claims 1, 11 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: increase in activity of glucosamine-6-P acetyltransferase, classified in class 435, subclass 84.
- III. Claims 1, 12 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: increase in activity of chitin synthase, classified in class 435, subclass 84.
- IV. Claims 1, 13 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: increase in activity of chitin deacetylase, classified in class 435, subclass 84.
- V. Claims 1, 14 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from

the group consisting of: increase in activity of chitin synthase and chitin deacetylase, classified in class 435, subclass 84.

- VI. Claims 1, 15 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: decrease in activity of glucosamine-6-P deaminase, classified in class 435, subclass 84.
- VII. Claims 1, 16 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: decrease in activity of N-acetylglucosamine-6-P deacetylase, classified in class 435, subclass 84.
- VIII. Claims 1, 18 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: decrease in activity of chitinase, classified in class 435, subclass 84.
- VIII. Claims 1, 19 and 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: decrease in activity of chitosonase, classified in class 435, subclass 84.
- IX. Claims 1, 17, 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: decrease in activity of N-acetylglucosamine-6-P deacetylase and glucosamine-6-P deaminase, classified in class 435, subclass 84.

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- X. Claims 1, 20, 21-31, drawn to a method to produce chitin or chitosan by a fermentation process comprising at least one genetic modification selected from the group consisting of: decrease in activity of chitinase and chitosonase, classified in class 435, subclass 84.
- XI. Claim 32, drawn to a biomass comprising chitin and/or chitosan, classified in class 536, subclass 20.
- XII. Claims 33-35, drawn to a genetically modified microorganism comprising at least two genetic modifications selected from the group consisting of: increase in activity of glutamine-fructose-6-phosphate amidotransferase, glucosamine-6-P acetyltransferase, chitin synthase, chitin deacetylase and a decrease in activity of N-acetylglucosamine-6- P deacetylase, glucosamine-6-P deaminase, chitinase and chitosonase, classified in class 435, subclass 252.3.

The inventions are distinct, each from the other because of the following reasons:

Inventions XI, XII are drawn to products and are patentably distinct from each other. The products of groups XI, XII are structurally different do not require each other for practice; have separate utilities and are subject to separate manufacture and sale.

Inventions I-X and XI are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case a biomass comprising chitin or chitosan can be made from variety of sources by chemical extraction.

Inventions I-X and XII are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case group XII microorganisms can be used for making other macromolecules like polynucleotide, polypeptides etc.,.

Hence, the above inventions have acquired separate status in the art and separate fields of search.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

#### ***Species Election***

This application contains claims directed to the following patentably distinct species of the claimed invention:

##### **Group XII, claims 33-35:**

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species i. e., one set (two genes) of modification wherein said genes activities are either increased or decreased for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, **Group XII, claims 33-35** are generic.

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Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP§ 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

#### ***Rejoinder of restricted inventions***

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitation of the allowable product claim will be rejoined in accordance with the provisions of M.P.E.P. 821.04. Process claims that depend from or otherwise include all the limitation of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after allowance are governed by 37

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C.F.R. 1.312.

In the event of a rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 C.F.R. 1.104. thus, to be allowable, the rejoined claims must meet the criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of In re Ochiai, In re Brouwer and 35 U.S.C. 103(b), 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that process claims should be amended during prosecution either to maintain dependency on the product claims or otherwise include the limitation of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See M.P.E.P. 804.01.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathirama Raghu whose telephone number is 571-272-4533.



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The examiner can normally be reached on 8 am - 4.30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications. Any inquiry of a general nature or relating to the status of the application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

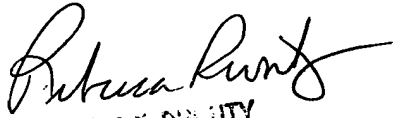
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ganapathirama Raghu, Ph.D.

Patent Examiner

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Sept. 18, 2006.

  
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